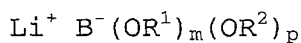


WHAT IS CLAIMED IS

1. A positive-electrode material comprising a coated metal core of Sb, Bi, Cd, In, Pb, Ga, tin, or an alloy thereof.
2. A positive-electrode material according to Claim 1, wherein the coated metal core is tin.
3. A positive-electrode material according to Claim 1, wherein a coating of the coated metal core is a metal hydroxide or a metal oxyhydroxide which has been converted into its oxide.
4. A positive-electrode material according to Claim 3, wherein the coating is of tin, molybdenum, cerium, tungsten or antimony hydroxide or oxyhydroxide; wherein the hydroxide or oxyhydroxide has been converted into its oxide.
5. A positive-electrode material according to Claim 1, wherein the core has a single coating.
6. A positive-electrode material according to Claim 1, wherein the core has multiple coatings.
7. A process for the production of the positive-electrode material according to Claim 1, comprising
- a) preparing a suspension or sol of the metal or alloy core in urotropin;
- b) emulsifying the suspension with at least one C₅-C₁₂-hydrocarbon;
- c) precipitating the emulsion onto the metal or alloy core; and

d) converting a metal hydroxide or an oxyhydroxide into the corresponding oxide by heating the system.

- 5 8. An electrochemical cell comprising a negative electrode, a positive electrode, a separator and an electrolyte, wherein the positive electrode comprises a positive-electrode material according to Claim 1.
- 10 9. An electrochemical cell with improved positive electrode cyclability comprising a positive-electrode material according to Claim 1, wherein the coated metal core has defined metal-oxide layers.
- 15 10. An electrochemical cell, a battery, or a secondary lithium battery comprising a positive electrode material according to Claim 1.
- 20 11. A positive electrode material according to Claim 1, wherein the coated metal cores comprise secondary particles having a diameter of about $0.01\mu\text{m}$ - about $10\mu\text{m}$.
- 25 12. A positive electrode material according to Claim 11, further comprising secondary particles having a diameter of less than about 10 microns.
- 30 13. A process for the production of the positive-electrode material according to Claim 1, comprising preparing a suspension or sol of the metal or alloy core in urotropin.
- 35 14. An electrochemical cell according to Claim 8, wherein the negative electrode comprises an alkali metal borate of the formula:



wherein

m and p are 0, 1, 2, 3 or 4, where $m + p = 4$, and

R^1 and R^2 are, independently, identical or different,

5 are optionally bonded directly to one another via a single or double bond,

are each, individually or together, an aromatic or aliphatic carboxylic, dicarboxylic or sulfonic acid
10 radical, or

are each, individually or together, an aromatic ring of a phenyl, naphthyl, anthracenyl or phenanthrenyl group, which may be unsubstituted or mono- to tetrasubstituted by
15 A or Hal, or

are each, individually or together, a heterocyclic aromatic ring of a pyridyl, pyrazyl or bipyridyl group, which may be unsubstituted or mono- to trisubstituted by A
20 or Hal, or

are each, individually or together, an aromatic hydroxy acid of an aromatic hydroxycarboxylic acid or an aromatic hydroxysulfonic acid group, which may be unsubstituted or
25 mono- to tetrasubstituted by A or Hal,

and

Hal is F, Cl or Br
30

and

A is alkyl having 1 to 6 carbon atoms, which may be mono- to trihalogenated.
35

15. An electrochemical cell according to Claim 8, wherein the negative electrode comprises an alkali metal alkoxide of the formula:

$\text{Li}^+ \text{OR}^-$

in which R

5 is an aromatic or aliphatic carboxylic, dicarboxylic or sulfonic acid radical, or

is an aromatic ring of a phenyl, naphthyl, anthracenyl or phenanthrenyl group, which may be unsubstituted or mono-
10 to tetrasubstituted by A or Hal, or

is a heterocyclic aromatic ring of a pyridyl, pyrazyl or bipyridyl group, which may be unsubstituted or mono- to
15 trisubstituted by A or Hal, or

is an aromatic hydroxy acid of an aromatic hydroxycarboxylic acid of aromatic hydroxysulfonic acid group, which may be unsubstituted or mono- to
20 tetrasubstituted by A or Hal,

and

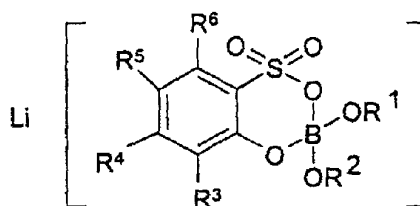
Hal is F, Cl or Br

25 and

A is alkyl having 1 to 6 carbon atoms, which may be mono- to trihalogenated.

30

16. An electrochemical cell according to Claim 8, wherein the negative electrode comprises a lithium salt of formula:



wherein

- 5 R¹ and R² are, independently, identical or different, are optionally bonded directly to one another via a single or double bond, and are each, individually or together, an aromatic ring of a phenyl, naphthyl, anthracenyl or phenanthrenyl group, which may be unsubstituted or mono-
10 to hexasubstituted by an alkyl group, an alkoxy group or halogen.